

2 a bushing having an interior bore including a plurality of equally spaced generally  
3 T-shaped retainers axially extending in said interior bore and a like plurality of lobes between  
4 adjacent generally T-shaped retainers;  
5 a shaft rotatably supported within said interior bore of said bushing;  
6 a plurality of compliant foils, with an individual compliant foil disposed in said interior  
7 bore of said bushing between adjacent generally T-shaped retainers; and  
8 a plurality of foil undersprings, with an underspring disposed beneath each of said  
9 compliant foils between adjacent generally T-shaped retainers.

1 2. The compliant foil fluid film radial bearing of claim 1 wherein said interior bore  
2 is cylindrical and said individual compliant foils and said individual foil undersprings beneath  
3 said individual complaint foils establish a converging wedge between adjacent generally  
4 T-shaped retainers.

1 3. The compliant foil fluid film radial bearing of claim 1 wherein said interior bore  
2 is non-cylindrical generally contoured lobes are formed between adjacent generally T-shaped  
3 retainers, and said individual compliant foils and said individual foil undersprings generally  
4 conform to the shape of said contoured lobes to establish a converging wedge.

1 4. A compliant foil fluid film radial bearing comprising:  
2 a bushing having a cylindrical interior bore including a plurality of equally spaced  
3 retainers axially extending into said interior bore and a like plurality of arc segments between  
4 adjacent retainers;  
5 a shaft rotatably supported within said interior bore of said bushing;

6 a plurality of compliant foils, with an individual compliant foil disposed in said interior  
7 bore of said bushing in each arc segment between adjacent retainers; and  
8 a plurality of foil undersprings, with an underspring disposed beneath each of said  
9 compliant foils in each arc segment between adjacent retainers, the radial height of said foil  
10 undersprings increasing from its leading edge to its trailing edge to establish a converging wedge  
11 on the surface of said compliant foil facing said shaft.

C3  
cont  
B1  
cont  
1 5. The compliant foil fluid film radial bearing of claim 4 wherein said retainers are  
2 generally T-shaped.

1 6. The compliant foil fluid film radial bearing of claim 5 wherein said generally  
2 T-shaped retainers are symmetrical.

1 7. The compliant foil fluid film radial bearing of claim 5 wherein said generally  
2 T-shaped retainers are asymmetrical.

1 8. The compliant foil fluid film radial bearing of claim 7 wherein said generally  
2 T-shaped asymmetrical retainers have a crosspiece with a leading edge and a trailing edge, with  
3 the leading edge thicker than the trailing edge.

1 9. The compliant foil fluid film radial bearing of claim 4 wherein the radial stiffness  
2 of said foil undersprings increases from its leading edge to its trailing edge.

1 10. The compliant foil fluid film radial bearing of claim 9 wherein said bearing is  
2 hydrodynamic.

1 11. The compliant foil fluid film radial bearing of claim 9 wherein said retainers are  
2 generally T-shaped.

C3  
cont  
1 12. The compliant foil fluid film radial bearing of claim 9 wherein said bearing is  
2 hydrostatic.

B1  
cont  
1 13. A compliant foil fluid film radial bearing comprising:  
2 a bushing having a non-cylindrical interior bore including a plurality of equally spaced  
3 retainers axially extending into said interior bore and a like plurality of contoured lobes between  
4 adjacent retainers;  
5 a shaft rotatably supported within said interior bore of said bushing;  
6 a plurality of compliant foils, with an individual compliant foil disposed in said interior  
7 bore of said bushing in each contoured lobe between adjacent retainers; and  
8 a plurality of foil undersprings, with an underspring disposed beneath each of said  
9 compliant foils in each contoured lobe between adjacent retainers, the contour of each lobe  
10 between adjacent retainers establishing a converging wedge on the surface of said compliant foil  
11 facing said shaft.

1 <sup>15</sup>~~14~~. (Once Amended) The compliant foil fluid film radial bearing of claim <sup>14</sup>~~56~~ wherein  
2 said generally T-shaped retainers are symmetrical.

1 <sup>17</sup>~~15~~. The compliant foil fluid film radial bearing of claim 16 wherein said generally  
2 T-shaped asymmetrical retainers have a crosspiece with a leading edge and a trailing edge, with  
3 the leading edge thicker than the trailing edge.

1 16. (Once Amended) The compliant foil fluid film radial bearing of claim <sup>14</sup>56 wherein  
2 said generally T-shaped retainers are asymmetrical.

*C3*  
*work*  
1 <sup>18</sup>17. (Once Amended) The compliant foil fluid film radial bearing of claim <sup>14</sup>56 wherein  
2 said generally T-shaped retainers include radial openings to provide cooling flow to said interior  
3 bore of said bushing.

*B1*  
*cont*  
1 <sup>19</sup>18. The compliant foil fluid film radial bearing of claim 13 and in addition means to  
2 provide cooling flow axially into said interior bore of said bushing.

1 <sup>20</sup>19. A compliant foil fluid film radial bearing comprising:  
2 a bushing having an interior bore including a plurality of generally T-shaped retainers  
3 axially extending in said interior bore;  
4 a plurality of compliant foils, with an individual compliant foil disposed in said interior  
5 bore of said bushing between adjacent generally T-shaped retainers; and  
6 a plurality of foil undersprings, with an underspring disposed beneath each of said  
7 compliant foils between adjacent generally T-shaped retainers.

1 <sup>26</sup>20. The compliant foil fluid film radial bearing of claim <sup>20</sup>19 wherein said interior bore  
2 is cylindrical and said individual compliant foils and said individual foil undersprings beneath  
3 said individual complaint foils establish a converging wedge between adjacent generally  
4 T-shaped retainers.

1 <sup>20</sup>21. The compliant foil fluid film radial bearing of claim <sup>19</sup>19 wherein said interior bore  
2 is non-cylindrical, generally contoured lobes are formed between adjacent generally T-shaped

3 retainers, and said individual compliant foils and said individual foil undersprings generally  
4 conform to the shape of said contoured lobes to establish a converging wedge.

C3  
1 22. The compliant foil fluid film radial bearing of claim <sup>20</sup>~~19~~ wherein said bearing is  
2 hydrodynamic.

B1  
1 23. The compliant foil fluid film radial bearing of claim <sup>20</sup>~~19~~ wherein said bearing is  
2 hydrostatic.

1 24. The compliant foil fluid film radial bearing of claim <sup>20</sup>~~19~~ wherein said generally  
2 T-shaped retainers include radial openings to provide cooling flow to said interior bore of said  
3 bushing.

1 25 The compliant foil fluid film radial bearing of claim <sup>20</sup>~~19~~ further comprising:  
2 means to provide cooling flow axially into said interior bore of said bushing.

1 <sup>27</sup>~~26~~. A compliant foil fluid film radial bearing comprising:  
2 a bushing having a cylindrical interior bore including a plurality of retainers axially  
3 extending into said interior bore;  
4 a plurality of compliant foils, with an individual compliant foil disposed in said interior  
5 bore of said bushing between adjacent retainers; and  
6 a plurality of foil undersprings, with an underspring disposed beneath each of said  
7 compliant foils between adjacent retainers, the radial height of said foil undersprings increasing  
8 from its leading edge to its trailing edge to establish a converging wedge of said compliant foil.

1 <sup>28</sup>~~27~~. The compliant foil fluid film radial bearing of claim <sup>27</sup>~~26~~ wherein said retainers are  
2 generally T-shaped.

1 <sup>31</sup>  
~~28.~~ The compliant foil fluid film radial bearing of claim <sup>28</sup>~~27~~ wherein said generally

2 T-shaped retainers are symmetrical.

1 <sup>28</sup>  
29. The compliant foil fluid film radial bearing of claim ~~27~~ wherein said generally

2 T-shaped retainers are asymmetrical.

1 30. The compliant foil fluid film radial bearing of claim 29 wherein said generally

2 T-shaped asymmetrical retainers have a crosspiece with a leading edge and a trailing edge, with  
3 the leading edge thicker than the trailing edge.

1 <sup>33</sup>  
~~31.~~ The compliant foil fluid film radial bearing of claim <sup>27</sup>~~26~~ wherein the radial  
2 stiffness of said foil undersprings increases from its leading edge to its trailing edge.

1 <sup>34</sup>  
~~32.~~ The compliant foil fluid film radial bearing of claim <sup>33</sup>~~31~~ wherein said bearing is  
2 hydrodynamic.

1 <sup>35</sup>  
~~33.~~ The compliant foil fluid film radial bearing of claim <sup>33</sup>~~31~~ wherein said bearing is  
2 hydrostatic.

1 <sup>32</sup>  
~~34.~~ The compliant foil fluid film radial bearing of claim <sup>28</sup>~~27~~ wherein said generally  
2 T-shaped retainers include radial openings to provide cooling flow to said interior bore of said  
3 bushing.

1 <sup>36</sup>  
~~35.~~ The compliant foil fluid film radial bearing of claim <sup>27</sup>~~26~~ further comprising:  
2 means to provide cooling flow axially into said interior bore of said bushing.

1 <sup>37</sup>  
~~36.~~ A compliant foil fluid film radial bearing comprising:

2 a bushing having a non-cylindrical interior bore including plurality of retainers axially  
3 extending into said interior bore;  
4 a plurality of compliant foils, with an individual compliant foil disposed in said interior  
5 bore of said bushing between adjacent retainers; and  
6 a plurality of foil undersprings, with an underspring disposed beneath each of said  
7 compliant foils between adjacent retainers, the contour of the interior bore between adjacent  
8 retainers establishing a converging wedge on the surface of said compliant foil.

1 <sup>39</sup>~~37~~. The compliant foil fluid film radial bearing of claim <sup>37</sup>~~36~~ wherein said retainers are  
2 generally T-shaped.

1 <sup>44</sup>~~38~~. The compliant foil fluid film radial bearing of claim <sup>39</sup>~~37~~ wherein said generally  
2 T-shaped retainers are asymmetrical.

1 <sup>45</sup>~~39~~. The compliant foil fluid film radial bearing of claim <sup>44</sup>~~38~~ wherein said generally  
2 T-shaped asymmetrical retainers have a crosspiece with a leading edge and a trailing edge, with  
3 the leading edge thicker than the trailing edge.

1 40. The compliant foil fluid film radial bearing of claim <sup>39</sup>~~37~~ wherein said generally  
2 T-shaped retainers are symmetrical.

1 41. The compliant foil fluid film radial bearing of claim <sup>39</sup>~~37~~ wherein said bearing is  
2 hydrodynamic.

1 42. The compliant foil fluid film radial bearing of claim <sup>39</sup>~~37~~ wherein said bearing is  
2 hydrostatic.

1 43. The compliant foil fluid film radial bearing of claim <sup>39</sup>~~37~~ wherein said generally  
2 T-shaped retainers include radial openings to provide cooling flow to said interior bore of said  
3 bushing.

*31*  
1 <sup>38</sup>~~44~~. The compliant foil fluid film radial bearing of claim <sup>37</sup>~~36~~ further comprising:  
2 means to provide cooling flow axially into said interior bore of said bushing.

*B1 cont*  
3 <sup>46</sup>~~45~~. A radial bearing bushing comprising:  
4 a bushing having an interior bore;  
5 one or more retainer bases axially extending into the interior bore;  
6 one or more leading edges attached to each of the one or more retainer bases for retaining  
7 a compliant foil; and  
8 one or more trailing edges attached to each of the one or more retainer bases for retaining  
9 a compliant foil.

1 <sup>49</sup>~~46~~. The radial bearing bushing of claim <sup>46</sup>~~45~~ wherein one or more of the one or more  
2 retainer bases include radial openings to provide cooling flow to said interior bore of said  
3 bushing.

1 47. The radial bearing bushing of claim <sup>46</sup>~~45~~ wherein the interior bore is cylindrical.

1 48. The radial bearing bushing of claim <sup>46</sup>~~45~~ wherein the interior bore is  
2 non-cylindrical.

1 <sup>50</sup>~~49~~. A compliant foil radial bearing comprising:



2 a bushing having an interior bore including one or more retainer bases axially extending  
3 into the interior bore;  
4 one or more compliant foils  
5 one or more leading edges attached to each of the one or more retainer bases for retaining  
6 a compliant foil trailing edge; and  
7 one or more trailing edges attached to each of the one or more retainer bases for retaining  
8 a compliant foil leading edge; and  
one or more foil undersprings, each underspring disposed beneath a compliant foil.

1 <sup>56</sup>~~50~~. The compliant foil radial bearing of claim <sup>50</sup>~~49~~ wherein the interior bore is  
2 cylindrical and an individual compliant foil and underspring beneath the individual complaint  
3 foil form a converging wedge.

1 51. The compliant foil radial bearing of claim <sup>50</sup>~~49~~ wherein the interior bore is  
2 non-cylindrical generally contoured lobes are formed between adjacent retainer bases, and an  
3 individual compliant foil and underspring beneath the individual complaint foil generally  
4 conform to the shape of a contoured lobe to establish a converging wedge.

1 52. The compliant foil radial bearing of claim <sup>50</sup>~~49~~ wherein said bearing is  
2 hydrodynamic.

1 ~~53~~ 53. The compliant foil radial bearing of claim <sup>50</sup>~~49~~ wherein said bearing is hydrostatic.

1 54. The compliant foil radial bearing of claim <sup>50</sup>~~49~~ wherein the one or more retainer  
2 bases include radial openings to provide cooling flow to the interior bore of said bushing.

1 55. The compliant foil radial bearing of claim <sup>50</sup>~~49~~ further comprising: